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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/963,359

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Zhaomiao Tang

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8253

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07/18/2006

David J. Brezner, Esq.
DORSEY & WHITNEY LLP
Suite 1000
555 California Street
San Francisco, CA 94104-1513

EXAMINER

SIMITOSKI, MICHAEL J

ART UNIT

PAPER NUMBER

2134

DATE MAILED: 07/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/963,359

Applicant(s)

TANG, ZHAOMIAO

Examiner

Michael J. Simitoski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,9-11,13-16 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,9-11,13-16 and 19-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/24/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The IDS and response of 4/24/2006 was received and considered. It is noted that the IDS states that the European search report for Application 2001 12 1848 was included, but is not found. However, the Examiner has included this search report in the art cited.
2. Claims 1, 3-6, 9-11, 13-16 & 19-21 are pending.

Response to Arguments

3. Applicant's arguments with respect to claims 1, 3-6, 9-11, 13-16 & 19-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 3-6, 9-11, 13-16 & 19-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 1, the specification does not describe how “unchanged key information” would be restored (line 25) if “information including ... key information of the host which has been changed by the virus” is extracted (i.e. the unchanged key information is not identified).

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Regarding claim 1, the specification does not describe why key information would be restored if the key information is unchanged (line 25), as the preamble of the claim recites cleaning computer viruses.

Regarding claim 1, the specification does not describe from where and to where “unchanged key information” is restored (line 25).

Regarding claim 11, the specification does not describe how “unchanged key information” would be restored (lines 27-28) if “information including ... key information of the host which has been changed by the virus” is extracted (i.e. the unchanged key information is not identified).

Regarding claim 11, the specification does not describe why key information would be restored if the key information is unchanged (lines 27-28), as the preamble of the claim recites cleaning computer viruses.

Regarding claim 11, the specification does not describe from where and to where “unchanged key information” is restored (lines 27-28).

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 3-6, 9-11, 13-16 & 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, it is unclear how “simulating in a computer a virtual computer circumstance, on which virtual computer circumstance the computer viruses will reside” is to be

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interpreted. *For the purposes of this Office Action, this is understood to mean “simulating in a computer a virtual computer circumstance, wherein computer viruses will reside on the virtual computer circumstance”.*

Regarding claim 1, the claim recites “activating any virus attached on the target object to be scanned in said simulated virtual computer circumstance to induce virus infection of the target object” (lines 9-11), however, the claim also recites “said target object being a host possibly attached by a virus” (line 8) and therefore it is unclear how infection can be induced if the host is already infected. *This is understood to mean “activating any virus attached on the target object to be scanned in said simulated virtual computer circumstance to induce virus infection of the plurality of objects”.*

Regarding claim 1, it is unclear how “unchanged key information” would be restored (line 25) if “information including ... key information of the host which has been changed by the virus” is extracted (i.e. the unchanged key information is not identified).

Regarding claim 1, it is unclear why key information would be restored if the key information is unchanged (line 25), as the preamble of the claim recites cleaning computer viruses.

Regarding claim 1, it is unclear from where and to where “unchanged key information” is restored (line 25).

Regarding claim 11, it is unclear how “a computer simulation unit for simulating a virtual computer circumstance, on which virtual computer circumstance the computer viruses will reside” is to be interpreted. *For the purposes of this Office Action, this is understood to mean “a*

computer simulation unit for simulating in a virtual computer circumstance, wherein computer viruses will reside on the virtual computer circumstance”.

Regarding claim 11, the claim recites “activating any virus possibly attached on the target object to be scanned in said simulated virtual computer environment to induce virus infection of the target object” (lines 10-12), however, the claim also recites “said target object being a host possibly attached by a virus” (line 9) and therefore it is unclear how infection can be induced if the host is already infected. *This is understood to mean “activating any virus attached on the target object to be scanned in said simulated virtual computer circumstance to induce virus infection of the plurality of objects”.*

Regarding claim 11, it is unclear how “unchanged key information” would be restored (lines 27-28) if “information including ... key information of the host which has been changed by the virus” is extracted (i.e. the unchanged key information is not identified).

Regarding claim 11, it is unclear why key information would be restored if the key information is unchanged (lines 27-28), as the preamble of the claim recites cleaning computer viruses.

Regarding claim 11, it is unclear from where and to where “unchanged key information” is restored (lines 27-28).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, 11 & 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,842,002 to Schnurer et al. (**Schnurer**) and U.S. Patent 5,485,575 to Chess et al. (**Chess**).

Regarding claims 1, 11 & 21, Schnurer discloses simulating in a computer a virtual computer circumstance/trapping device (col. 5, lines 7-10 & col. 6, lines 64-67), wherein computer viruses will reside on the virtual computer circumstance, providing a plurality of objects/files to be infected by computer viruses that induce virus infection (col. 7, lines 39-43), loading a target object/data stream (col. 6, line 64 – col. 7, line 11 & col. 7, lines 25-52) to be scanned into said simulated virtual computer circumstance/trapping device, activating/executing the target object/virus to be scanned in said simulated virtual computer circumstance/trapping device to induce the virus infection of the target object to infect the plurality of objects to be infected/files and generating standard samples/infected files which have been infected (col. 7, lines 47-52), comparing the plurality of objects/files after processing in the activating/executing step with the plurality of objects/files to be infected originally provided, determining whether there is any change (CRC check) or not; if there is a change, the target object to be scanned contains virus, otherwise the target object to be scanned is free of viruses (col. 7, lines 39-52). Schnurer lacks analyzing to extract information on the viruses indicated by changes between the plurality of objects before infection and the standard samples after infection when it is determined that said target object to be scanned is a virus, said information including at least the size of the virus and key information of the host which has been changed by the virus and to clean the virus from the infected target object by locating the host body and the virus body in the target object, restoring unchanged key information of the host on the basis of said information

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and removing the virus body from the target object after the activation step according to the virus size. Chess teaches generated standard samples/infected-host (col. 5, lines 17-41), where if a virus is attached to the threat object and the virus is activated, the target object will include a host body and a virus body (Fig. 3, infected host), extracting information/VAD of virus infection based on a comparison of the infected files (col. 2, lines 66-67 & col. 4, lines 37-45) and the standard samples/infected-hosts (col. 6, lines 25-32), said information including at least the size/length of the virus (col. 6, lines 48-54) and key information/offset which has been changed by the virus (col. 6, lines 45-54) and cleaning/repairing the virus based on the information/VAD (col. 18, lines 30-38) for the purposes of detecting and removing viruses (col. 2, lines 55-59, col. 6, lines 17-20 & col. 22, lines 36-43). While Chess does not explicitly teach locating the virus body, restoring unchanged key information and removing the virus body from the target object according to the virus size, this is inherently done if the original target/program is to be restored to it's original, uninfected state (col. 22, lines 39-43 & Fig. 3). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Schnurer to extract information on the viruses indicated by changes between the plurality of objects before infection and the standard samples after infection when it is determined that said target object to be scanned is a virus, said information including at least the size of the virus and key information of the host which has been changed by the virus and to clean the virus from the infected target object by locating the host body and the virus body in the target object, restoring unchanged key information of the host on the basis of said information and removing the virus body from the target object after the activation step according to the virus size. One of ordinary skill in the art would have been motivated to perform such a modification to detect and remove

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the virus, as taught by Chess (col. 2, lines 55-67, col. 4, lines 37-45, col. 5, lines 17-41, col. 6, lines 17-20, col. 22, lines 36-43 & Fig. 3).

10. Claims 3-4 & 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer** and **Chess**, as applied to claims 1 & 11 above, in further view of Connectix Virtual PC software by **Connectix**, Described in “Connectix Virtual PC” datasheet (VPC) and “Connectix Virtual PC Family Frequently Asked Questions” (FAQ).

Regarding claims 3 & 13, Schnurer, as modified above, is silent regarding details of the emulation. However, Connectix teaches simulating a Central Processing Unit (CPU)/Pentium chip (VPC, p. 1, ¶2), simulating an Operating System (OS)/PC-based operating system (VPC, p. 1, ¶1 & ¶3), and simulating peripheral storage devices by simulating storage space and structures of various peripheral storage devices/CD-ROM and PC disk/floppy disk (VPC, p. 2, ¶3). Virtual PC is used to run applications for one platform (such as Windows) on another platform (such as Macintosh). Further, FAQ teaches that Virtual PC simulates both a hard disk and memory for the emulated software, in this case, Windows (FAQ, p. 9, ¶7). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to simulate a CPU, OS, storage device and memory. One of ordinary skill in the art would have been motivated to perform such a modification to run Windows from within a Macintosh, as taught by Connectix (VPC, p. 1, ¶1-3, p. 2, ¶3 & FAQ, p. 9, ¶7).

Regarding claims 4 & 14, Schnurer discloses multiple baits of different sizes and contents (FAT, executables) (col. 8, lines 13-20).

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11. Claims 5-6 & 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer, Chess and Connectix**, as applied to claims 4 & 14 above, in further view of U.S. Patent 6,067,410 to **Nachenberg**.

Regarding claims 5 & 15, Schnurer discloses multiple baits of different sizes and contents (FAT, executables) (col. 8, lines 13-20), but lacks specifically a specific virus. However, Nachenberg teaches that the bulk of software viruses in DOS based systems are COM files. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include DOS COM bait files. One of ordinary skill in the art would have been motivated to perform such a modification to include as bait commonly infected files, as taught by Nachenberg (col. 8, lines 13-20).

Regarding claims 6 & 16, Schnurer discloses simulating the system time to generate virtual system date and time for inducing the viruses that are sensitive to date and time (col. 7, lines 33-35).

12. Claims 9-10 & 19-20, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Schnurer, Chess and Connectix**, as applied to claims 3 & 13 above, in further view of U.S. Patent 5,537,636 to Uchida et al. (**Uchida**), U.S. Patent 6,356,915 to Chtchetkine et al. (**Chtchetkine**) & U.S. Patent 6,192,456 to Lin et al. (**Lin**). Schnurer as modified above, discloses system files and bait files for inducing viruses (Schnurer col. 6, line 64 – col. 7, line 11 & col. 7, lines 25-52) and teaches that VPC is software emulation of the hardware on a PC (Connectix FAQ, p. 9, ¶6-7), but lacks explicit disclosure of sectors, tracks, cylinders, a primary boot sector and corresponding blank sector of the No. 0 track, next boot sector, File Allocation

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Table, root directory sector. However, Uchida teaches that disks contain cylinders, tracks and sectors (col. 6, line 61 – col. 7, line 65), a primary boot sector (col. 8, lines 13-15) and corresponding blank sector of the number 0 track (col. 8, lines 28-32), and a File Allocation Table (col. 5, lines 46-50). Further, Chtchetkine teaches that the logical structure on the FAT file system requires a boot sector that describes the root directory sectors within the disk (col. 2, lines 22-27). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to assign memory to simulate a virtual hard disk including a space by sector number, track number and cylinder number, a primary boot sector and corresponding blank sector of the No. 1 track, File Allocation table and root directory sector. One of ordinary skill in the art would have been motivated to perform such a modification to simulate in software the hardware (hard disk, floppy disk) of a PC, as taught by Connectix (Connectix FAQ, p. 9, ¶6-7), Uchida (col. 5, lines 46-50, col. 6, line 61 – col. 7, line 65, col. 8, lines 13-15 & col. 8, lines 28-32) and Chtchetkine (col. 2, lines 22-27). As modified, Schnurer lacks a next boot sector. However, Lin teaches that storing multiple partitions requires multiple boot sectors (Fig. 3 & col. 4, lines 52-54). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a next boot sector. One of ordinary skill in the art would have been motivated to perform such a modification to use multiple partitions, as taught by Lin (Fig. 3 & col. 4, lines 52-54).

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Simitoski whose telephone number is (571) 272-3841. The examiner can normally be reached on Monday - Thursday, 6:45 a.m. - 4:15 p.m..

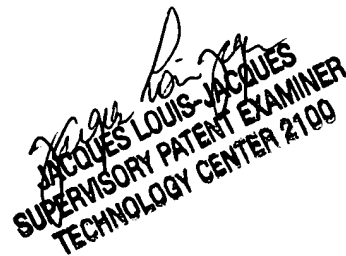
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jacques Louis-Jacques can be reached on (571) 272-6962. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJS



June 22, 2006



JACQUES LOUIS-JACQUES
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100